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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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140	7590	08/21/2007		
LADAS & PARRY 26 WEST 61ST STREET NEW YORK, NY 10023			EXAMINER FEELY, MICHAEL J	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/049,233	Applicant(s) QIAO ET AL.	
	Examiner Michael J. Feely	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,9,10,12,14,16 and 18-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6,7,9,10,12,14,16 and 18-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Pending Claims

Claims 1, 6, 7, 9, 10, 12, 14, 16 and 18-30 are pending.

Response to Arguments

1. Applicant's arguments, see pages 8-13 of the response, filed May 31, 2007, with respect to the rejection(s) of claim(s) 1, 6, 7, 9, 10, 12, 14, 16 and 18-29 under 35 U.S.C. 102 and/or 103 have been fully considered and are persuasive. Therefore, the rejections over Coran et al. have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ottawa et al. (US Pat. No. 4,818,785).

Ottawa et al. was first applied as prior art in the Office action dated April 5, 2005. The rejections were overcome by amendment, as noted in the Final rejection dated October 24, 2005. After further amendments to the claims (*see amendment entered with RCE on December 11, 2006*), rejections over this reference should have been reinstated in the previous Office action dated December 28, 2006. This oversight has been recognized and the reference has been applied below.

Response to Amendment

2. The rejection of claims 9, 10, 16, 24, and 29 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Coran et al. (US Pat. No. 5,889,119) has been withdrawn.

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3. The rejection of claims 1, 6, 7, 12, 14, 18-23, and 25-28 under 35 U.S.C. 103(a) as being unpatentable over Coran et al. (US Pat. No. 5,889,119) has been withdrawn.

Claim Rejections - 35 USC § 112, 1st paragraph

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 9, 10, 14, 16, 22, 24, 27, and 29 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A *spheroidic* fully vulcanized powdery rubber is critical or essential to the practice of the invention, but not included in the claim(s). Such an omission is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

Applicants' arguments note that the spheroidic rubber phase is a result of vulcanizing rubber latex with irradiation (*see paragraph bridging pages 8 & 9 of the response*). In light of the arguments, it appears that this is a required consequence and feature of the product-by-process limitation.

Claim Rejections - 35 USC § 112, 2nd paragraph

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 9, 10, 14, 16, 22, 24, 27, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: *see rejection above*.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 9, 10, 14, 16, 22, 24, 27, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ottawa et al. (US Pat. No. 4,818,785).

Regarding claims 9, 10, 14, 16, 22, 24, 27, and 29, Ottawa et al. disclose: **(9)** a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the steps of: (i) providing a fully vulcanized powdery rubber as a first starting material (column 11, lines 1-55), and (ii) blending the fully vulcanized powdery rubber with plastic as a second starting material (column 11, lines 1-55), wherein the fully vulcanized powdery rubber is prepared by vulcanizing a corresponding rubber latex with irradiation (column 7, line 36 through column 8, line 16); and wherein the weight ratio of the fully vulcanized powdery rubber to the plastic is 30:70 to 75:25 (column 11, lines 1-55);

(10) wherein the weight ratio of fully vulcanized powdery rubber to plastic is 50:50 to 75:25 (column 11, lines 1-55);

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(14) wherein the average particle size of fully vulcanized powdery rubber is 0.05-0.5 μ (column 11, lines 1-55), (22) wherein the average particle size of fully vulcanized powdery rubber 0.05-0.2 μ (column 11, lines 1-55);

(16) wherein the plastic matrix is at least one of *see list* (column 10, lines 25-68; column 11, lines 1-55);

(24) wherein the first starting material consists essentially of the fully vulcanized powdery rubber and the second starting material consists essentially of the plastic (column 11, lines 1-55);

(27) wherein the average particle size of the fully vulcanized powdery rubber is 0.02-1 μ (column 11, lines 1-55); and

(29) wherein the fully vulcanized powdery rubber comprises at least one of *see list* (column 5, line 45 through column 6, line 68).

Claim Rejections - 35 USC § 102/103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 6, 7, 12, 18-21, 23, 25, 26, 28, and 30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Otawa et al. (US Pat. No. 4,818,785).

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Regarding claims 1, 6, 7, 18-21, 23, 25, and 26, Ottawa et al. disclose: **(1)** a fully vulcanized thermoplastic elastomer *comprising a rubber phase and a plastic matrix* (column 11, lines 1-55), wherein an average particle size of the rubber phase of said fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 11, lines 1-55); wherein the weight ratio of rubber phase to plastic is 30:70 to 75:25 (column 11, lines 1-55); and wherein the rubber phase is provided by a fully vulcanized powdery rubber prepared by vulcanizing a corresponding rubber latex with irradiation (column 11, lines 1-55; column 7, line 36 through column 8, line 16);

(6) wherein said rubber has a gel content of at least 60% by weight (column 9, line 30 through column 10, line 22), **(21)** wherein said rubber has a gel content of at least 75% by weight (column 9, line 30 through column 10, line 22);

(7) wherein the plastic matrix is at least one of *see list* (column 10, lines 25-68; column 11, lines 1-55);

(18) a method of preparing a moulded article with the vulcanized thermoplastic elastomer of claim 1 (column 11, lines 55-68);

(19) wherein the average particle size of said rubber phase is 0.05-0.2 μ (column 11, lines 1-55);

(20) wherein the weight ratio of rubber phase to plastic 50:50 to 75:25 (column 11, lines 1-55);

(23) wherein said fully vulcanized thermoplastic elastomer is prepared by a process comprising the steps of: (i) providing a fully vulcanized powdery rubber (column 11, lines 1-55), which is prepared by vulcanizing a corresponding rubber latex with irradiation (column 7, line 36 through column 8, line 16); and (ii) blending the fully vulcanized powdery rubber with a

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plastic (column 11, lines 1-55), wherein a weight ratio of the fully vulcanized powdery rubber to the plastic is 30:70 to 75:25 (column 11, lines 1-55);

(25) wherein the average particle size of said rubber phase is 0.05-0.5 μ (column 11, lines 1-55); and

(26) wherein the rubber phase is at least one of *see list* (column 5, line 45 through column 6, line 68).

Regarding claims 12 and 28, Ottawa et al. disclose: (12) a process for preparing a fully vulcanized thermoplastic elastomer, which comprises the steps of: (i) providing a fully vulcanized powdery rubber as a first starting material (column 11, lines 1-55), and (ii) blending the fully vulcanized powdery rubber with plastic as a second starting material (column 11, lines 1-55), wherein the fully vulcanized powdery rubber is prepared by vulcanizing a corresponding rubber latex with irradiation (column 7, line 36 through column 8, line 16); and wherein the weight ratio of the fully vulcanized powdery rubber to the plastic is 30:70 to 75:25 (column 11, lines 1-55); and

(28) wherein the average particle size of the fully vulcanized powdery rubber is 0.02-1 μ (column 11, lines 1-55).

Regarding claim 30, Ottawa et al. disclose: (30) a fully vulcanized thermoplastic elastomer prepared by blending a rubber that is powdery and fully vulcanized with a plastic to form the elastomer with a rubber phase and a plastic matrix (column 11, lines 1-55), wherein the fully vulcanized powdery rubber that is blended with the plastic is prepared by vulcanizing a latex comprising the rubber with irradiation (column 7, line 36 through column 8, line 16); and

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wherein the average particle size of the particles in the rubber phase of the fully vulcanized thermoplastic elastomer is 0.02-1 μ (column 11, lines 1-55).

In all of the above claims, Ottawa et al. fail to explicitly disclose: **(1 & 12)** wherein the shape of the fully vulcanized powdery rubber is *spheroidic*; and **(30)** whereby the rubber phase is formed with particles having a shape that is *spheroidic* and more regular than if the rubber phase were formed by dynamic vulcanization by means of a cross-linking agent an intense shear stress during blending of the rubber and the plastic.

However, one skilled in the art would have expected the vulcanization process of Ottawa et al. (irradiation of latex) to inherently produce such a product. This is bolstered by Applicants' arguments (*see paragraphs bridging pages 8 & 9*).

Therefore, the instantly claimed *spheroidic* rubber phase would have been inherently present in the fully vulcanized thermoplastic elastomer of Ottawa et al. because they vulcanize the rubber phase by irradiating a latex of said rubber.

Double Patenting

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

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ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1, 6, 7, 9, 10, 12, 14, 16 and 18-30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 1-6 and 18 of U.S. Patent No. 6,838,490. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The combined limitations of the patented claims anticipate the instantly claimed invention with the following exceptions: (1) the patented claims fail to explicitly set forth the claimed weight ratios of rubber phase to plastic matrix (*see claims 1, 9, 10, 20*); (2) the patented claims fail to explicitly set forth a *spheroidic* rubber phase (*see claims 1, 12, 30*); (3) the patented claims fail to explicitly set forth specific polymer matrix materials (*see claims 7 & 16*); and (4) the patented claims fail to explicitly disclose a method of preparing a molded article (*see claim 18*).

With respect to (1), it would have been obvious to one of ordinary skill in the art to optimize this ratio because the rubber is being added to *toughen* the polymer matrix. In other words, this ratio is a result-effective variable – *see MPEP 2144.05*.

With respect to (2), this *spheroidic* rubber phase would have been inherently present due to the irradiation-vulcanization of latex.

With respect to (3), one of ordinary skill in the art would have immediately envisaged these polymer materials as the (thermoplastic) polymer matrix being toughened. Alternatively, this would have been obvious in light of the teachings of Coran et al. and/or Ottawa et al.

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With respect to (4), one of ordinary skill in the art would have immediately envisaged this molding process, in light of forming a toughened material. Alternatively, this would have been obvious in light of the teachings of Coran et al. and/or Ottawa et al.

14. Claims 1, 6, 7, 9, 10, 12, 14, 16 and 18-30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 1-16 of U.S. Patent No. 6,998,438. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The combined limitations of the patented claims anticipate the instantly claimed invention with the following exceptions: (2) the patented claims fail to explicitly set forth a *spheroidic* rubber phase (*see claims 1, 12, 30*); and (4) the patented claims fail to explicitly disclose a method of preparing a molded article (*see claim 18*).

With respect to (2), this *spheroidic* rubber phase would have been inherently present due to the irradiation-vulcanization of latex.

With respect to (4), one of ordinary skill in the art would have immediately envisaged this molding process, in light of forming a toughened material. Alternatively, this would have been obvious in light of the teachings of Coran et al. and/or Ottawa et al.

15. Claims 1, 6, 7, 9, 10, 12, 14, 16 and 18-30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 1-6, 22, and 23 of U.S. Patent No. 6,423,760. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The combined limitations of the patented claims anticipate the instantly claimed invention with the following exceptions: (1) the patented claims fail to explicitly set forth the

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claimed weight ratios of rubber phase to plastic matrix (*see claims 1, 9, 10, 20*); (2) the patented claims fail to explicitly set forth a *spheroidic* rubber phase (*see claims 1, 12, 30*); (3) the patented claims fail to explicitly set forth specific polymer matrix materials (*see claims 7 & 16*); and (4) the patented claims fail to explicitly disclose a method of preparing a molded article (*see claim 18*).

With respect to (1), it would have been obvious to one of ordinary skill in the art to optimize this ratio because the rubber is being added to *toughen* the polymer matrix. In other words, this ratio is a result-effective variable – *see MPEP 2144.05*.

With respect to (2), this *spheroidic* rubber phase would have been inherently present due to the irradiation-vulcanization of latex.

With respect to (3), one of ordinary skill in the art would have immediately envisaged these polymer materials as the (thermoplastic) polymer matrix being toughened. Alternatively, this would have been obvious in light of the teachings of Coran et al. and/or Ottawa et al.

With respect to (4), one of ordinary skill in the art would have immediately envisaged this molding process, in light of forming a toughened material. Alternatively, this would have been obvious in light of the teachings of Coran et al. and/or Ottawa et al.

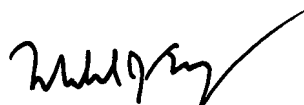
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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael J. Feely
Primary Examiner
Art Unit 1712

August 16, 2007

**MICHAEL FEELY
PRIMARY EXAMINER**